ZooKeys 179: 115–126 (2012)
doi: 10.3897/zookeys.179.2494
www.zookeys.org

RESEARCH ARTICLE

A peer-reviewed open-access journal
ZooKeys
Launched to accelerate biodiversity research

New Coleoptera records from New Brunswick, Canada: Lycidae

Reginald P. Webster[1], Jon D. Sweeney[1], Ian DeMerchant[1]

1 *Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, 1350 Regent St., P.O. Box 4000, Fredericton, NB, Canada E3B 5P7*

Corresponding author: *Reginald P. Webster* (reginaldwebster@rogers.com)

Academic editor: *J. Klimaszewski* | Received 5 December 2011 | Accepted 26 January 2012 | Published 4 April 2012

Citation: Webster RP, Sweeney JD, DeMerchant I (2012) New Coleoptera records from New Brunswick, Canada: Lycidae. In: Anderson R, Klimaszewski J (Eds) Biodiversity and Ecology of the Coleoptera of New Brunswick, Canada. ZooKeys 179: 115–126. doi: 10.3897/zookeys.179.2494

Abstract

Eight species of Lycidae are newly recorded from New Brunswick, Canada, bringing the total number of species known from the province to 16. The first documented records from New Brunswick are provided for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) reported by Majka et al. (2011). *Eropterus arculus* Green, *Lopheros crenatus* (Germar), and *Calochromus perfacetus* (Say) are reported for the first time in the Maritime provinces. Collection data, habitat data, and distribution maps are presented for all these species.

Keywords

Lycidae, new records, Canada, New Brunswick

Introduction

The Lycidae of North America was reviewed by Green 1949, 1950, 1951, 1952, 1953, 1954), and all species in the Maritime provinces of Canada can readily be determined using these keys. Larvae of the Lycidae are usually found in rotten logs, in leaf litter, and under bark and probably feed on myxomycetes or metabolic products of fungi (Lawrence 1982; Miller 2002). Adults are usually found on leaves or flowers and feed on nectar and honeydew. Larvae and adults are distasteful, and adults are often brightly colored and probably aposomatic in coloration (Miller 2002).

Copyright *Her Majesty the Queen in Right of Canada.* This is an open access article distributed under the terms of the Creative Commons Attribution License 3.0 (CC-BY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Twenty-nine species are known from Canada and five were reported from New Brunswick by McNamara (1991). Majka et al. (2011) reported *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) as occurring in New Brunswick but did not provide any supporting references or data. Here, eight species of Lycidae are newly reported from New Brunswick, Canada, as well as the first documented records for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say).

Methods and conventions

The following records are based in part on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick.

Collection methods

Various collection methods were employed to collect the Lycidae reported in this study. Details are outlined Webster et al. (2009, Appendix). A number of specimens were also collected as by-catch in Lindgren 12-funnel traps (ConTech Inc., Delta, BC) baited with various attractants as part of a study to develop a general attractant for the detection of invasive species of Cerambycidae. These traps mimic tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). Details on the methods used for deployment of these traps are outlined in Webster et al. (in press). A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized in collection and habitat data for each species.

Specimen preparation

Males of some species of Lycidae (all *Plateros* sp.) were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted on points and then pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in bold under Distribution in Canada and Alaska. The following abbreviations are used in the text:

AK	Alaska	**MB**	Manitoba
YT	Yukon Territory	**ON**	Ontario
NT	Northwest Territories	**QC**	Quebec
NU	Nunavut	**NB**	New Brunswick
BC	British Columbia	**PE**	Prince Edward Island
AB	Alberta	**NS**	Nova Scotia
SK	Saskatchewan	**NF & LB**	Newfoundland and Labrador*

Acronyms of collections examined or where specimens reside referred to in this study are as follows:

AFC Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Eight species of Lycidae are newly recorded from New Brunswick, Canada, bringing the total number of species known from the province to 16 (Table 1). The first documented records from New Brunswick are provided for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) reported by Majka et al. (2011). *Eropterus arculus* Green, *Lopheros crenatus* (Germar), and *Calochromus perfacetus* (Say) are reported for the first time in the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island).

Table 1. Species of Lycidae recorded from New Brunswick.

Family Lycidae Laporte	**Tribe Calochromini Lacordaire**
Subfamily Dictyopterinae Houlbert	*Calochromus perfacetus* (Say)**
Tribe Dictyopterini Houlbert	**Tribe Calopterini Green**
Greenarius thoracicus (Randall)	*Caenia dimidiata* (Fabricius)
Dictyopterus aurora (Herbst)	*Calopteron terminale* (Say)
Subfamily Lycinae Laporte	*Leptoceletes basalis* LeConte
Tribe Erotini LeConte	**Tribe Platerodini Kleine**
Eropterus arculus Green**	*Plateros bispiculatus* Green*
Eros humeralis (Fabricius)*	*Plateros flavoscutellatus* Blatchley*
Lopheros crenatus (Germar)**	*Plateros lictor* (Newman)
Lopheros fraternus (Randall)*	*Plateros subfurcatus* Green*
Erotides sculptilis (Say)	*Plateros volatus* Green

Notes: *New to province; **New to Maritime provinces

Species accounts

All records below are species newly recorded from New Brunswick, Canada unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces.

The classification of the Lycidae follows Kazantsev (2004) and Bouchard et al. (2011).

Family Lycidae, Laporte, 1836
Subfamily Dictyopterinae Houlbert, 1922
Tribe Dictyopterini Houlbert, 1922

***Greenarius thoracicus* (Randall, 1838)**
http://species-id.net/wiki/Greenarius_thoracicus
Map 1

Material examined. Additional New Brunswick records. Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI–16.VII.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel traps (2, RWC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC); same locality data and forest type, 7–13.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.VI.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in an old-growth eastern white cedar (*Thuja occidentalis* L.) forest, old red oak (*Quercus rubra* L.) forest, red spruce (*Picea rubens* Sarg.) forest, old red pine (*Pinus resinosa* Ait.) forest, and an old mixed forest. Adults were captured during June and July.

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, NB (Green 1951; McNamara 1991; Majka et al. 2011). *Greenarius thoracicus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here we provide the first documented records from New Brunswick.

Subfamily Lycinae Laporte, 1836
Tribe Erotini LeConte, 1881

Eropterus arculus* Green, 1951*
http://species-id.net/wiki/Eropterus_arculus
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 2.VIII.2004, R. P. Webster & M.-A. Giguère, mature hardwood forest, on foliage (1♂, NBM); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 4.VII.2005, R. P. Webster, river margin sweeping (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VII-6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8300°N, 66.7347°W, 29.VII.2004, R. P. Webster, regenerating mixed forest, on foliage (1, RWC); same locality but 45.8430°N, 66.7275°W, 12.VII.2005, 20.VII.2008, R. P. Webster, regenerating mixed forest, beating foliage (2, RWC).

Collection and habitat data. *Eropterus arculus* adults were collected by beating or sweeping foliage and hand picking adults from foliage in mature hardwood forests with American beech (*Fagus grandifolia* Ehrh.) and sugar maple (*Acer saccharum* Marsh.), regenerating mixed forests, and along a river margin. One individual was captured in a Lindgren funnel trap deployed in an old red oak forest. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991).

***Eros humeralis* (Fabricius, 1801)**
http://species-id.net/wiki/Eros_humeralis
Map 3

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8175°N, 64.7770°W, 6.VII.2011, R. P. Webster, mature hardwood forest, under bark of rotten sugar maple log (1, RWC). **Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 7–14.VII.2009, R. P. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in a mature hardwood forest (beech and sugar maple), an old red oak forest, and an old red pine forest. One adult was found under bark of a rotten sugar maple log in a mature hardwood forest (mostly sugar maple). Adults were captured during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1951; McNamara 1991; Dollin et al. 2008; Bishop et al. 2009).

Lopheros crenatus* (Germar, 1824)*
http://species-id.net/wiki/Lopheros_crenatus
Map 4

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1940°N, 67.6800°W, 3.VII.2006, R. P. Webster, mixed forest, beating foliage (1, RWC).

Collection and habitat data. One individual of *Lopheros crenatus* was collected from foliage during early July in a mixed forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Green 1951; McNamara 1991).

***Lopheros fraternus* (Randall, 1838)**
http://species-id.net/wiki/Lopheros_fraternus
Map 5

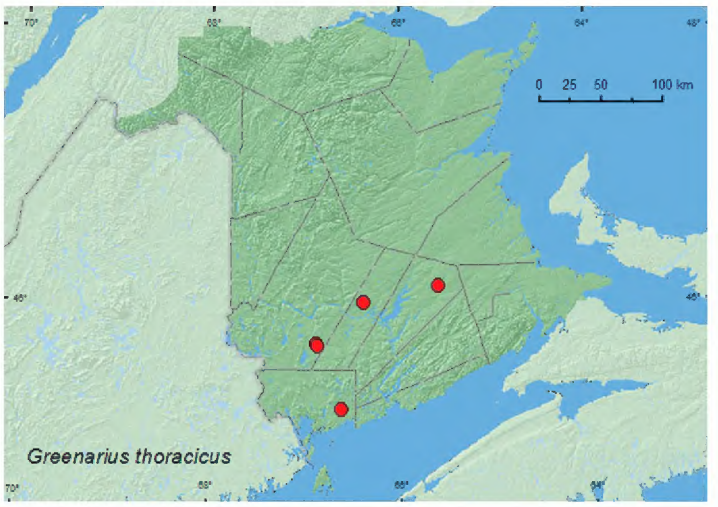
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI–13.VII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in a red spruce forest, old red oak forest, and old red pine forest. This species was collected during July in New Brunswick.

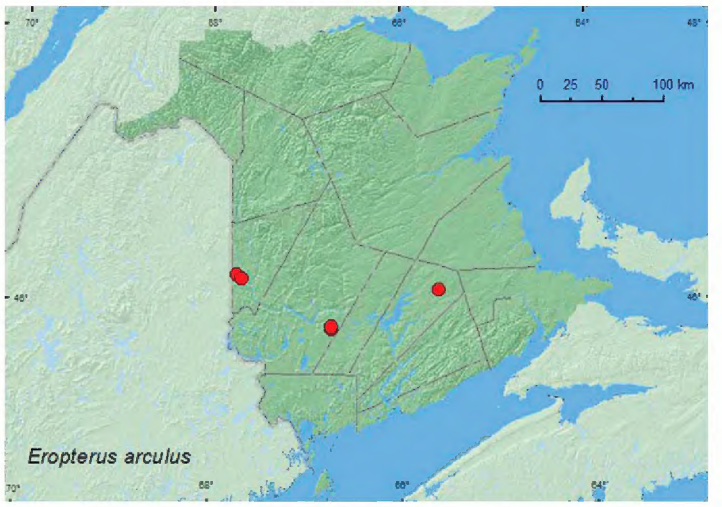
Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991; Dollin et al. 2008).

***Erotides sculptilis* (Say, 1835)**
http://species-id.net/wiki/Erotides_sculptilis
Map 6

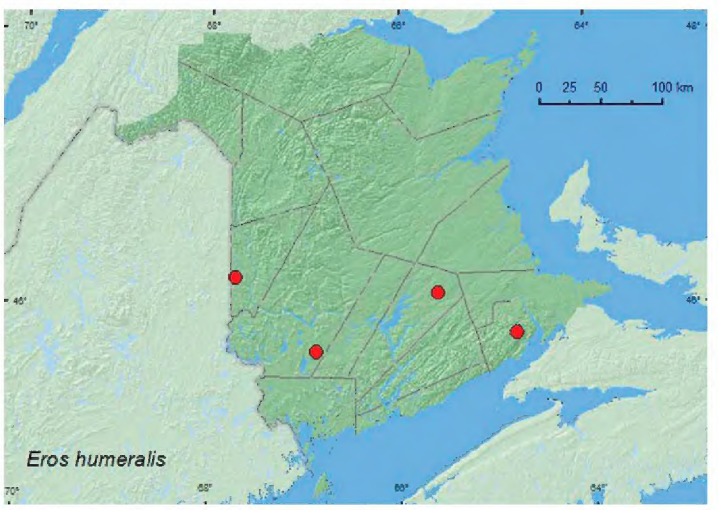
Material examined. Additional New Brunswick records. Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 2.VIII.2004, R. P. Webster, mixed forest, beating foliage (1, RWC). **York Co.**, Charters Settlement, 45.8300°N, 66.7347°W, 29.VII.2004, R. P. Webster, regenerating mixed forest, on



Map 1. Collection localities in New Brunswick, Canada of *Greenarius thoracicus.*

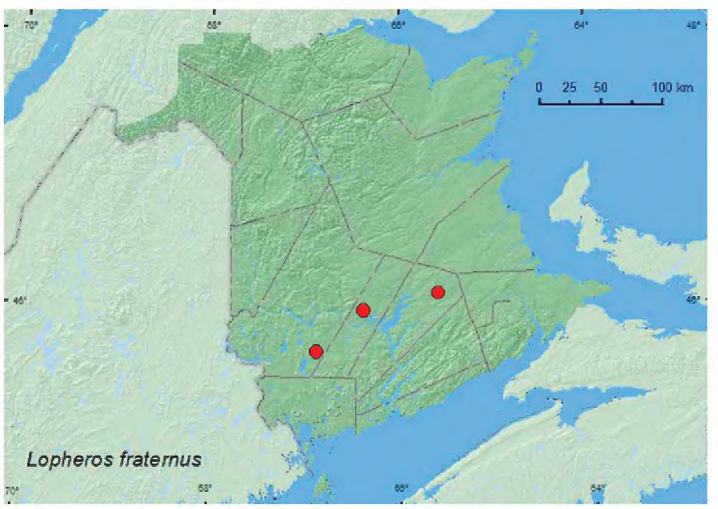


Map 2. Collection localities in New Brunswick, Canada of *Eropterus arculus.*

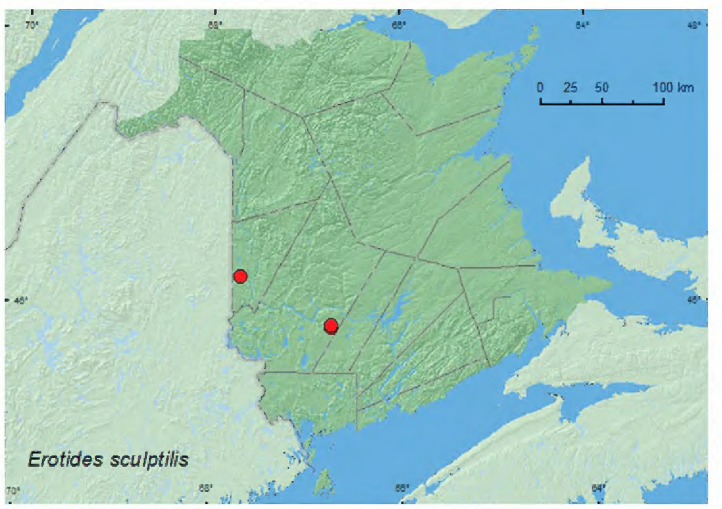


Map 3. Collection localities in New Brunswick, Canada of *Eros humeralis.*

Map 4. Collection localities in New Brunswick, Canada of *Lopheros crenatus.*



Map 5. Collection localities in New Brunswick, Canada of *Lopheros fraternus.*



Map 6. Collection localities in New Brunswick, Canada of *Erotides sculptilis.*

foliage (1, RWC); Charters Settlement, 45.8430°N, 66.7275°W, 17.VII.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. This species was collected by beating or sweeping foliage and hand picking adults from foliage in mixed and regenerating mixed forests during July and August.

Distribution in Canada and Alaska. ON, QC, NB (Green 1951; McNamara 1991; Majka et al. 2011). *Erotides sculptilis* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here we provide the first documented records from New Brunswick.

Tribe Calochromini Lacordaire, 1857

Calochromus perfacetus* (Say, 1825)*
http://species-id.net/wiki/Calochromus_perfacetus
Map 7

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1925°N, 67.6725°W, 13.VII.2004, R. P. Webster, mixed forest, beating foliage (1, RWC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 25.VII.2006, R. P. Webster, mixed forest, on flowers of *Spiraea alba* (1, RWC).

Collection and habitat data. Both individuals of *Calochromus perfacetus* from New Brunswick were collected in mixed forests, one from beating foliage, the other from flowers of *Spiraea alba* Du Roi. Adults were collected during July.

Distribution in Canada and Alaska. SK, ON, QC, **NB** (McNamara 1991).

Tribe Calopterini Green, 1949

***Calopteron terminale* (Say, 1823)**
http://species-id.net/wiki/Calopteron_terminale
Map 8

Material examined. Additional New Brunswick records. Queens Co., Waterborough, at boat landing at Grand Lake, 45.9072°N, 66.0127°W, 1.IX.2004, R. P. Webster, lakeshore in drift material (5, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, on flowers of *Spiraea alba* (1, AFC); same locality data and forest type, 31.VIII-15.IX.2011, C. Hughs & R. Webster, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 28.VIII.2004, R. P. Webster, silver maple forest, on foliage (1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 23.VIII.2003, 28.VIII.2004, 13.VIII.2004, R. P. Webster, regenerating mixed forest, on foliage (4, RWC); same locality but 45.8188°N, 66.7460°W, 11.IX.2004, R. P. Webster, clear-cut, under bark of conifer stump (2, RWC); Tracy, off Webb Rd., 45.6931°N, 66.6539°W, 31.VIII.2008, R. P. Webster, mixed forest, sweeping roadside vegetation (1, NBM).

Collection and habitat data. *Calopteron terminale* (Say) was collected from drift material along a lakeshore, from (hand picking adults on) foliage in a silver maple (*Acer*

saccharinum L.) forest, an old red oak forest, and regenerating mixed and mixed forests, and from under bark of a conifer stump in a clearcut. On individual was collected from flowers of *S. alba*, another was captured in a Lindgren funnel trap. Adults were captured during August and September.

Distribution in Canada and Alaska. MB, ON, QC, NB (Green 1952; McNamara 1991; Majka et al. 2011). *Calopteron terminale* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here we provide the first documented records from New Brunswick.

Subfamily Platerodini Kleine, 1929

Plateros bispiculatus Green, 1953

http://species-id.net/wiki/Plateros_bispiculatus
Map 9

Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 17.VII.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. One individual of this species was captured by sweeping foliage in a brushy opening in a regenerating mixed forest during July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1953; McNamara 1991; Dollin et al. 2008).

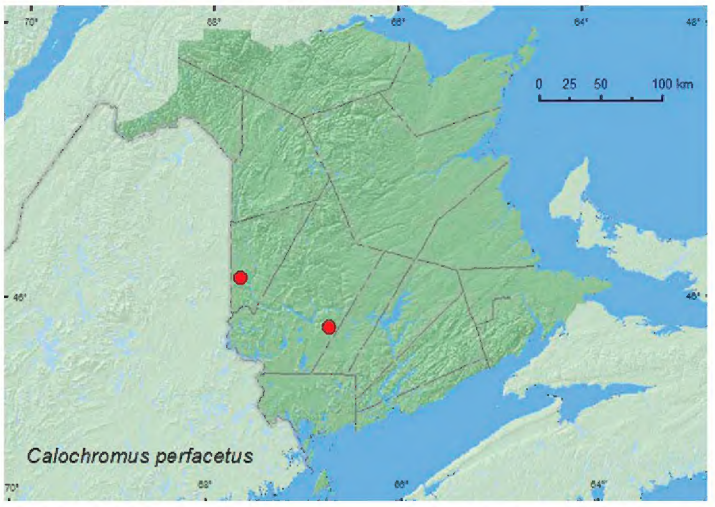
Plateros flavoscutellatus Blatchley, 1914

http://species-id.net/wiki/Plateros_flavoscutellatus
Map 10

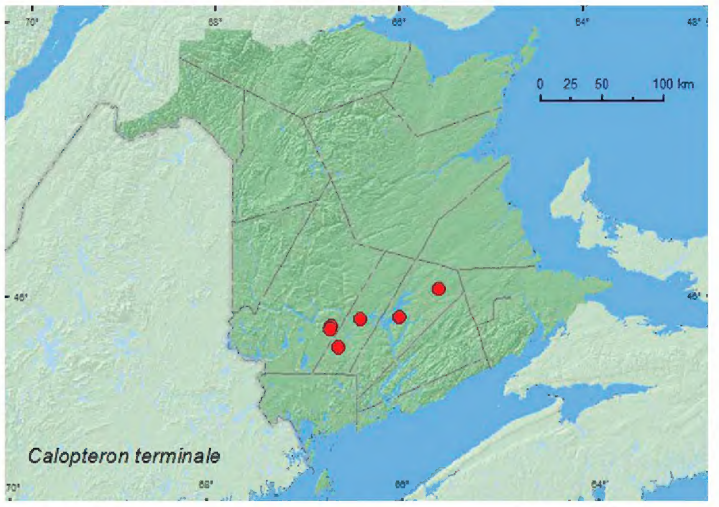
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 20.VII-4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2004, R. P. Webster, mixed forest, u.v. light (1, RWC); same locality but 45.8430°N, 66.7275°W, 3.VIII.2004, 13.VIII.2004, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (2, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–27.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC)

Collection and habitat data. This species was captured in mixed and regenerating mixed forests, in an old red oak forest, and in an old red pine forest. Adults were collected at a black-light trap, by sweeping foliage, and in Lindgren funnel traps. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1953; McNamara 1991).

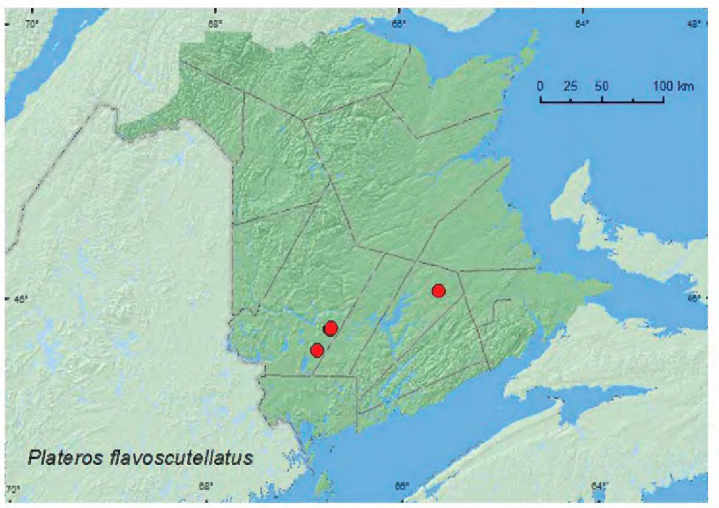


Map 7. Collection localities in New Brunswick, Canada of *Calochromus perfacetus.*



Map 8. Collection localities in New Brunswick, Canada of *Calopteron terminale.*

Map 9. Collection localities in New Brunswick, Canada of *Plateros bispiculatus.*



Map 10. Collection localities in New Brunswick, Canada of *Plateros flavoscutellatus.*

Plateros subfurcatus Green, 1953

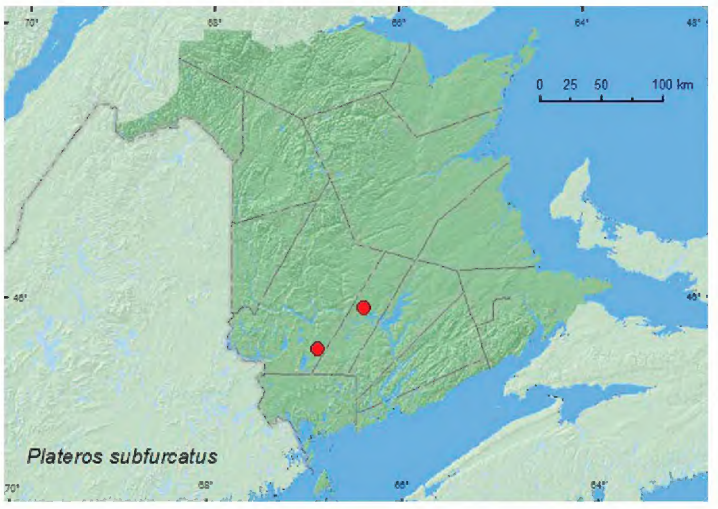
http://species-id.net/wiki/Plateros_subfurcatus

Map 11

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 30.VI–8.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, Rt. 645 at Beaver Brook, 45.6830°N, 66.8679°W, 8.VII.2008, R. P. Webster, red maple and alder swamp, sweeping foliage (1, RWC).

Collection and habitat data. One individual was captured in a Lindgren funnel trap deployed in a red spruce forest and another was collected by sweeping foliage in a red maple (*Acer rubrum* L.) and alder (*Alnus* sp.) swamp. Both adults were captured during July.

Distribution in Canada and Alaska. ON, **NB**, NS (McNamara 1991; Bishop et al. 2009).



Map 11. Collection localities in New Brunswick, Canada of *Plateros subfurcatus.*

Acknowledgments

We thank Caroline Simpson for editing this manuscript. Yves Bousquet and two anonymous reviewers made many helpful suggestions that greatly improved this manuscript. C. Majka and J. Cook are thanked for determining some Lycidae specimens of the first author. Nichole Brawn, Katie Burgess, Marie-Andrée Giguère, Nancy Harn, Cory Hughes, Ervin Kovacs, Colin MacKay, Wayne MacKay, Jessica Price, Michelle Roy, and Vincent Webster are thanked for technical assistance and collecting specimens. We thank Natural Resources Canada, Canadian Forest Service; the Canadian Food Inspection Agency; and USDA APHIS for funding the study on early detection of invasive cerambycids, which provided specimens from Lindgren funnel traps. The Canadian Wildlife Service is thanked for funding insect surveys at the Portobello Creek National Wildlife Area; the New Brunswick Environmental Trust Fund and New Brunswick Wildlife Trust Fund for funding various insect surveys over the past 7 years; and the Meduxnekeag River Association for permission to sample beetles at the Meduxnekeag Valley Nature Preserve (which includes the Bell Forest). The New Brunswick Department of Natural Resources (Fish and Wildlife Branch) is thanked for issuing permits for sampling in the Protected Natural Areas and logistical support. Survey work in the Caledonia Gorge Protected Natural Area was organized through the New Brunswick Museum with external funding from the New Brunswick Environmental Trust Fund, Salamander Foundation, and the New Brunswick Wildlife Trust Fund.

References

Bishop DJ, Majka CG, Bondrup-Nielsen S, Peck SB (2009) Deadwood and saproxylic beetle diversity in naturally disturbed and managed spruce forests in Nova Scotia. In: Majka CG, Klimaszewski J (Eds) Biodiversity, biosystematics, and ecology of Canadian Coleoptera II. ZooKeys 22: 309–340. doi: 10.3897/zookeys.22.144

Bouchard P, Bousquet Y, Davies AE, Alonso-Zarazaga MA, Lawrence JF, Lyal CHC, Newton AF, Reid CAM, Schmitt M, Ślipiński SA, Smith ABT (2011) Family group names in Coleoptera (Insecta). ZooKeys 88: 1–972. doi: 10.3897/zookeys.88.807

Dollin PE, Majka CG, Duinker PN (2008) Saproxylic beetle (Coleoptera) communities and forest management practices in coniferous stands in southwestern Nova Scotia, Canada. ZooKeys 2: 291–336. doi: 10.3897/zookeys.2.15

Green JW (1949) The Lycidae of the United States and Canada. I. The tribe Lycini (Coleoptera). Transactions of the American Entomological Society 75: 53–70.

Green JW (1950) The Lycidae of the United States and Canada. II. The tribe Lygistopterini (Coleoptera). Transactions of the American Entomological Society 76: 13–25.

Green JW (1951) The Lycidae of the United States and Canada. III. The tribe Platerodini (in part) (Coleoptera). Transactions of the American Entomological Society 77: 1–20.

Green JW (1952) The Lycidae of the United States and Canada. IV. The tribe Calopterini (Coleoptera). Transactions of the American Entomological Society 78: 1–19.

Green JW (1953) The Lycidae of the United States and Canada. V. *Plateros* (Coleoptera). Transactions of the American Entomological Society 78: 149–181.

Green JW (1954) An addition to the lycid fauna of the United States (Coleoptera). The Coleopterists Bulletin 8: 55–57.

Kazantsev SV (2004) Phylogeny of the tribe Erotini (Coleoptera, Lycidae), with descriptions of new taxa. Zootaxa 496: 1–48.

Lawrence JF (1982) Coleoptera. In: Parker S (Ed) Synopsis and Classification of Living Organisms. Volume 2. McGraw-Hill, New York, NY, 482–553.

Lindgren BS (1983) A multiple funnel trap for scolytid beetles (Coleoptera). The Canadian Entomologist 115: 299–302. doi: 10.4039/Ent115299-3

Majka CG, Chandler DS, Donahue CP (2011) Checklist of Beetles of Maine, USA. Empty Mirrors Press, Halifax, Nova Scotia, 328 pp.

McNamara J (1991) Family Lycidae: net-winged beetles. In: Bousquet Y (Ed) Checklist of Beetles of Canada and Alaska. Agriculture Canada, Research Branch, Ottawa, Ontario, Publication 1861/E, 188–189.

Miller RS (2002) Family 59. Lycidae Laporte 1836. In: Arnett RH Jr, Thomas MC, Skelley PE, Frank JH (Eds) American Beetles. Volume 2. Polyphaga: Scarabaeoidea through Curculionoidea, CRC Press, Boca Raton, Florida, 174–178.

Webster RP, Klimaszewski J, Pelletier G, Savard K (2009) New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada. I. Aleocharinae. In: Majka CG, Klimaszewski J (Eds) Biodiversity, biosystematics, and ecology of Canadian Coleoptera II. ZooKeys 22: 171–248. doi: 10.3897/zookeys.22.152

Webster RP, Smetana A, Sweeney JD, DeMerchant I (in press) New Staphylinidae (Coleoptera) records with new collection data from New Brunswick and an addition to the fauna of Quebec: Staphylininae. In: Klimaszewski J, Anderson R (Eds) Biodiversity, Biosystematics and Ecology of Canadian Staphylinidae (Coleoptera) II. ZooKeys.